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## **ABSTRACT:**

An apparatus for carrying out a multi-step process of converting hydrocarbon fuel
to a substantially pure hydrogen gas feed includes a plurality of modules arranged in a
nested manner along a common axis. The multi-step process includes: providing a fuel
processor having a plurality of modules arranged so that they are nested one within the
other; and feeding the hydrocarbon fuel successively through each of the modules in the
reactor to produce the hydrogen rich gas.